

# Managing Alaskan Lawns

## Weed Identification, Prevention and Control

HGA-00239



by Mary J. Comeau, IPM/Ag Project Coordinator, and  
Wayne G. Vandre, Extension Horticulture Specialist

Weed control in lawns is primarily a matter of proper turf establishment and maintenance. Understanding the importance of turfgrass selection, cultural practices, and soil conditions can help to promote a lawn that will have few serious weed problems.

Proper identification of the invading weed is an important key in diagnosing problems related to its presence. For instance, prostrate knotweed is usually associated with compacted soils, moss and chickweed with shady areas. For problems such as these the conditions that promote the growth of weeds must be corrected before grass can be expected to prosper.

## Identifying Common Weeds

Below are descriptions of some annual and perennial weeds that are common to Alaskan lawns and a discussion of the factors that may give them an advantage over the desired turfgrass species.

### ANNUAL WEEDS

#### **Common chickweed** (*Stellaria media*)

Chickweed is a low growing annual, 1 to 12 inches high, with numerous branching stems. Established plants spread via branched, creeping above-ground stems that root at the nodes. Nodes are stem joints where leaves, branches or roots are produced. The leaves are small, smooth, oval-shaped and taper to a point. Small star-like, five-petalled white flowers can appear at anytime during the growing season. Moist, shady areas are a preferred habitat, and dense mats may form in lawns that are thin and kept rather long (3 inches or more). Chickweed is most often found in the shade of trees and shrubs, especially on the north side of buildings. Although shade is the preferred habitat, chickweed can also survive in full sun.



### **Annual bluegrass** (*Poa annua*)

Bluegrass is a bunch-type grass that may grow to 12 inches high in open situations or may survive at much shorter heights when growing in a maintained lawn. Leaves are light-green and curved upward on the margins and at the tip, giving the blade a boat-shaped appearance. The whitish-green seed head resembles an open pyramid in shape and seed may form at any time during the growing season. Mowing height has little effect on this grass' persistence, because it can form seed heads at cutting heights as short as  $\frac{1}{8}$  inch. It is shallow rooted, making it extremely susceptible to drought, and it will often die out during hot dry periods if not irrigated. Annual bluegrass may take over in low areas that are too wet for other lawn grasses. Although not winter hardy, it tends to grow best in cool weather and damp soils.



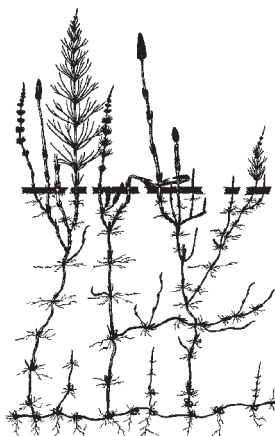
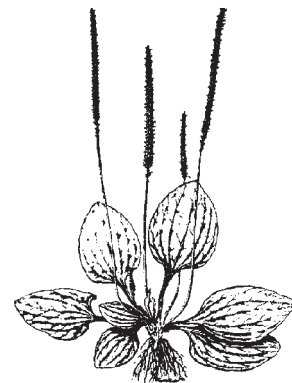
### **Prostrate knotweed** (*Polygonum aviculare*)

Knotweed is an annual that thrives from early spring to late fall. Multiple stems arise from a single taproot, grow close to the ground, and may spread out 2 feet or more. Unlike chickweed, this plant does not root at the nodes. Leaves are bluish-green, opposite and  $\frac{1}{2}$  to 1 inch in length. Flowers are small, pinkish-white and occur at the junction of leaf and stem. Prostrate knotweed is well adapted to compacted, highly trafficked areas, such as graveled driveways, and along sidewalks and paths.

## **PERENNIAL WEEDS**

### **Broadleaf plantain** (*Plantago major*)

Plantain is a low-growing perennial weed that forms a rosette in early spring. The leaves are oval, 1 to 8 inches long, and have prominent veins that run lengthwise from leaf stem to tip. Elongated flower spikes are borne on 2 to 10 inch stems; flowers are small and inconspicuous. Broadleaf plantain is spread by seed and tends to crowd out nearby grass due to its sprawling habit.

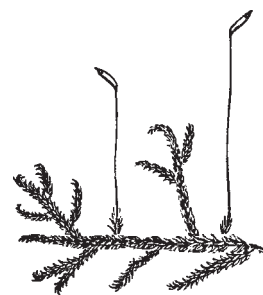


### **Horsetail** (*Equisetum arvense*)

Horsetail is a perennial weed that is spread by underground rhizomes (stems) or by spores. Early in the spring leafless stems appear, topped by yellowish honeycombed heads filled with spores. After the spores are produced the stem dies and a nonreproductive, vegetative structure appears. These new stems support the more commonly recognized form of horsetail with its numerous branches arranged in whorls. It is frequently found in moist, shady areas.

**Moss** (*Hypnum cupressiforme*, *Polytrichum commune*)

Mosses are shallow-rooted perennial plants that prefer moist areas such as the north sides of buildings and other shady places. They are spread by spores carried by wind, water or human activity. The presence of moss usually suggests areas of low fertility, too much shade, low pH, compacted soils, over watering or improper drainage. Moss is often found in areas where grass has refused to grow.

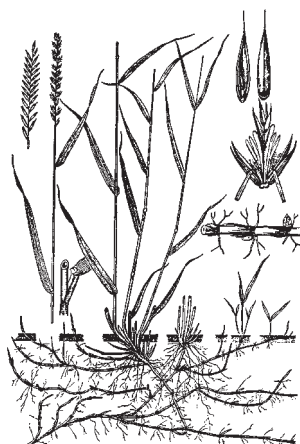


**White clover** (*Trifolium repens*)

White clover is commonly seen in nearly all turf areas and may or may not be objectionable in lawns depending on individual preference. Clover is a member of the legume family and as such it has the ability to fix (capture) atmospheric nitrogen. Some of the nitrogen gathered by the clover can be used by grasses growing in the same vicinity. However, the creeping growth habit of this perennial may sometimes overtake areas planted to grass. Clover leaves are composed of three leaflets with a small white mark in the center of each. White flowers are produced throughout the summer and are approximately  $\frac{1}{2}$  inch across. The plant may spread by seed or by above-ground creeping stolons (stems) that root at the nodes.

**Dandelion** (*Taraxacum officinale*)

Dandelions are one of the most common lawn weeds throughout the United States. They are most abundant in areas of full sunlight. These perennials may reproduce by seed or by division of the crown. Dandelion leaves, 3 to 10 inches long, form a rosette that lies relatively close to the ground. Bright yellow flowers are borne on 2 to 18 inch stalks. The plants produce thick, fleshy taproots that can penetrate many inches into the ground. Removal by hand of the crown and 2 to 3 inches of the tap root can be an effective means of control. A thick, well-established lawn not clipped too closely will help to prevent this weed from becoming established.



**Quackgrass** (*Elytrigia repens*)

Quackgrass is a perennial ranging from 1 to 4 feet in height. Lower leaves are quite hairy and up to  $\frac{1}{2}$  inch wide. Upper leaves are more slender and display less hair. Distinguishing characteristics of this grass are: rings of root hairs approximately 1 inch apart that continue down the length of the rhizomes (underground stems), and small claw-like appendages where the leaf grasps the plant stem. Quackgrass spreads by seed, aggressive rhizomes or rhizome fragments. Cultivation of quackgrass is discouraged due to the fact that even small fragments of rhizomes may give rise to new plants. Once established, quackgrass is extremely difficult to eradicate.

# Management Practices

Lawn management practices, including mowing, watering and fertilization, are essential to any weed control program. Secondary to proper management is the implementation of chemical or mechanical control measures. In most situations where good management practices have been followed, weed problems will not be significant.

## SOIL

Adequate topsoil is essential for water and nutrient retention and for proper rooting. A lawn planted on thin soils or in low, wet areas will generally provide less than satisfactory results. In situations where there is inadequate topsoil and cost prohibits the addition of large amounts of soil, some of the following suggestions might be considered. Think small; maybe a small lawn would be adequate. Use stone, bark or wood chips to create other open areas. You might consider using an ornamental ground cover such as pussy toes (*Antennaria rosea*) or creeping phlox (*Phlox subulata*). Low-growing native plants can also be good materials that will tolerate the extremes that turf grass will not. Dwarf dogwood (*Cornus canadensis*) and creeping juniper (*Juniperus horizontalis*) are just two examples. The Cooperative Extension publication *Landscape Plant Materials for Alaska* is an excellent source of information on plants adapted to local growing conditions.

Although most topsoil will contain some weed seed, you should avoid purchasing any soil containing large amounts of weed seed or noxious weed seed. It is important to know the source of the soil you are planning to use. For new lawns, mix the new soil with existing soil and other soil amendments (lime, fertilizer) to a minimum depth of 4 to 5 inches when possible.

## pH

A minimum pH of 5.5 to 6.0 is required for establishment of most lawn grasses and to provide adequate nutrient availability. Whether

top soil is brought in or existing soil is used, the pH should be checked. If lime needs to be added to raise the pH, make any addition as far in advance of the planting date as is possible so that the pH will have time to adjust. Liming materials may be applied to an already established lawn, but be aware that pH adjustment will be quite slow, due to a lack of mobility of these products in the soil.

## FERTILIZER

Lawns that are provided with the correct nutrients throughout the growing season discourage weed growth through competition. Too little fertilizer can leave turf thin and vulnerable to invasion by weeds. Too much fertilizer can lead to disease problems, or to ground or surface water contamination. The three major elements necessary for turf health which need to be replaced on a regular basis are, nitrogen (N), phosphorus (P) and potassium (K). Other nutrients that are required in lesser quantities are called secondary nutrients and micronutrients. These are usually supplied in sufficient quantities by our native soils, and deficiencies of these elements are not normally a problem in Alaskan lawns.

Grasses use large quantities of nitrogen and unless it is replaced on a regular basis a lawn will soon become deficient. Research conducted at UAF/AFES in Palmer indicates that in order to keep an established lawn healthy and well-fed, fertilizer should be applied at least twice during the growing season at a rate of 8 pounds of 22-11-11 (or similar analysis) per 1000 square feet. In areas where rainfall is frequent or sometimes heavy, four applications per season at one half the above rate would be advised. In dry areas irrigation may be necessary to move the fertilizer into the root zone, but avoid over irrigation, which can leach fertilizer past the area where it can be used by the plant and into areas where it may contribute to groundwater contamination. Established lawns should be sampled approximately every three years to determine



nutrient status of N-P-K. Soil for new lawns should be analyzed for N-P-K content and the correct amounts applied and mixed into the top 4 to 5 inches of soil prior to planting.

Besides the familiar granular form of nitrogen fertilizer, other sources include: lawn clippings, manures, bone meal and blood meal. Organic sources release nitrogen slowly and may result in a longer feeding period than granular formulations. Reducing the amount of nitrogen available at any given time may also decrease the potential for leaching to groundwater. Microbial activity is required for the release of nitrogen from organic sources. This activity is slowed by low soil temperatures and makes nitrogen availability an unpredictable factor when using organic amendments in Alaska. The homeowner should also be aware that organic sources will generally be required in much larger quantities than granular formulations. Alaska lacks data on fertilizing turf with organic amendments; however, some home owners feel that they have received satisfactory results.

## **GRASS SELECTION**

If the variety you have chosen is not suited to the climate or environmental conditions in your area, even the best maintenance program will not produce a thick healthy lawn. There are several varieties that will do well in Alaska, and a listing of these may be found in the Cooperative Extension publication *Lawn Establishment*. Grass seed labels should state the percentage of weed seed present in the variety or mix being sold. Minimize the introduction of weeds by checking this information before making your purchase.

## **MOWING**

Most grasses that are adapted to Alaska growing conditions will do well if kept approximately 2.0 to 2.5 inches in height. Mowing should be done frequently, so that no more than  $\frac{1}{3}$  of the leaf is removed in any one mowing. For a lawn to be maintained at 2.0 inch height, mowing should take place when the grass 2.5 to 3.0 inches high. If exces-

sive leaf area is removed, lawn grasses lose their ability to photosynthesize, and weeds gain the advantage. Grass that is mowed too closely must use energy stored in the crown of the plant to produce new leaf tissue. This process, when repeated over and over again throughout the season, depletes critical plant food reserves and affects overall vigor. Mowing should be determined by grass height, not by the calendar.

Mulching mowers return grass clippings to the lawn rather than collecting them. The potential benefits of this system include decreasing waste and recycling nutrients. If you are using a mulching mower or would like to try one, it is extremely important to mow frequently so that only a very small amount of clippings is returned to the lawn at any one time. The success of this type of management is dependent upon the rapid breakdown of the clippings returned to the lawn and the prevention of thatch build-up. There is no Alaska data available at this time on the effectiveness of mulching mowers in our relatively cool and short summer season.

## **WATERING**

Symptoms of a water stressed lawn include: grass that does not spring back after being walked on, rolled leaves and/or a change in the normal color of the grass—for example, from bright green to a dull green or bluish cast. Watering that only wets the soil surface promotes shallow rooting and produces a lawn that will need more frequent watering and will be more susceptible to injury. Water should be applied in amounts sufficient to wet the soil to a minimum depth of 3 inches. The amount of water required to do this will vary with soil type. On very sandy soils only about  $\frac{1}{2}$  inch might be necessary, on a loam perhaps  $\frac{3}{4}$  inch and on soils containing a large portion of clay, 1 inch or more. You can calculate how much water is required to wet the soil to a 3-inch depth and also the length of time needed by setting out a number of large diameter containers and measuring

your sprinkler output. Keep track of the time, the amount of water in the container, and the depth of soil wetting. After your initial measurements you can use your watch or container as your guide for adequate watering.

### **MISCELLANEOUS TIPS**

Do not plant creeping perennials or plants such as violets that spread prolifically from seed, next to lawn areas. Maintain an open buffer zone where plants may spread without growing into the lawn.

## **Weed Control**

For lawns where good turf management has been neglected, chemical or mechanical weed control may be necessary. Chemical weed control should not be considered a regular maintenance operation. In other words, it should not be necessary to apply an herbicide every year or every time you fertilize.

### **MECHANICAL CONTROL**

Tillage can be an effective weed control technique when used on areas that have been prepared for seeding. Allow weeds to germinate and till them back into the soil once or twice to decrease weed seed populations and increase the competitive advantage of the lawn when it is planted. Mowing regularly can reduce the vigor of some tall growing weed species and may also limit the production and spread of weed seed.

Selective or spot cleanup works well for some infestations. You can cut around and underneath small patches of weeds and remove them. A replacement piece may be cut from an out-of-the-way area of lawn or you can use pieces that were removed when edging flower beds, paths or driveways. Firm the replacement sod into place and keep well watered until it becomes established. Individual scattered weeds can also be pulled or dug. This is best accomplished after a heavy rain or a deep watering. Dandelions should be cut off at least 2 inches below the soil surface to discourage regrowth.

### **CHEMICAL CONTROL**

For chemical treatments to be effective the weed must be properly identified and its life cycle determined. Choose an herbicide that is labeled for your type of lawn (fescue, bluegrass, etc.), as well as for the weeds you wish to control. Table 1 offers some suggestions. Use herbicides sparingly; avoid treating the entire lawn when spot treatment is sufficient.

**Preemergence** herbicides are applied to the soil to stop the germination and growth of weed seed. Most are available as ready-to-apply granules. Application should be made before weeds begin to germinate. To ensure that the product reaches the soil surface, the lawn should be mowed prior to application. Lawn clippings, leaves, and other debris should be removed. Apply the granules in two directions (90° apart) at one half the rate in each direction. This will distribute the chemical more evenly than one single application. Irrigate soon after application to move the herbicide into the soil. Sunlight at the soil surface can break down preemergence products, thus reducing weed control.

**Preemergence** herbicides can remain active in the soil for several months or longer. They are most effective on annuals but they can also control some perennials that start from seed. Most preemergence products will have little effect on weeds that are actively growing.

**Postemergence** herbicides are usually applied to the leaves of plants. Some are systemic and are translocated (moved) throughout the plant after application. Because postemergence herbicides must contact the foliage, your lawn should be free of debris (leaves or lawn clippings) and should not be mowed for several days prior to application, so that leaf surface area is maximized. Plants should be actively growing and there should be adequate soil moisture available. Do not mow for several days after application to allow the herbicide time to move through the plant to shoot or root areas. Some widely available postemergence products contain a herbicide

**Table 1. Lawn Herbicides registered for use in Alaska (ADEC 2009)**

<b>Weed</b>	<b>Application</b>	<b>Active Ingredient</b>	<b>Trade Name<sup>1,2</sup></b>
Annual bluegrass	Preemergence	pendimethalin DCPA	various Dacthal
Common chickweed	Preemergence Postemergence	isoxaben dicamba 2,4-D + fluroxpyr + dicamba	Gallery 75 DF Many Escalade
Dandelion Broadleaf plantain	Preemergence Postemergence	isoxaben 2,4-D 2,4-D + MCPP 2,4-D + fluroxypyr + dicamba	Gallery 75 DF Solution, various others Weed-B-Gon Escalade
Horsetail	Postemergence	2, 4-D + MCPP	Weed-B-Gon, various others
Moss	Postemergence	ferrous sulfate potassium laurate	TurfBuilder with Moss Control Bayer Advanced 2-in-1 Bonide Moss Max
Prostrate knotweed White clover	Preemergence Postemergence	isoxaben dicamba 2,4-D + fluroxypyr + dicamba carfentrazone-ethyl	Gallery 75 DF Escalade 2, Speed Zone Escalade Quicksilver T&O Herbicide
Quackgrass	Postemergence	glyphosate <sup>3</sup>	Roundup

<sup>1</sup> Use product according to manufacturer's directions.

<sup>2</sup> Where trade names appear, no discrimination is intended, and no endorsement is implied. Other products with the same active ingredients may be suitable.

<sup>3</sup> Will kill or injure lawn grass as well as target weeds.

plus fertilizer. Limit the use of these combined products to areas that require herbicide treatment. Make separate fertilizer applications to all other areas as needed.

Never treat a lawn that is under heat or drought stress. Weeds that are not actively growing will not be able to absorb or translocate the applied herbicide, and stressed grasses may be susceptible to injury. Postemergence herbicides may be applied as granules or in a spray solution. Both methods require good leaf contact. Granular applications must be made to wet foliage so that the

product will adhere to the leaf surface. The route of entry for most postemergence lawn herbicides is through the foliage, but dicamba can also be absorbed by plant roots. Where tree or shrub roots underlie lawn, treatment with dicamba may cause injury or death to these woody perennials.

Many postemergence herbicides can affect a wide range of broadleaf plants. Special care must be taken to prevent the chemical from moving into nontarget areas. Drift is caused by spray particles or by the vapor from spray particles moving off target. To minimize drift,

spray only when the air is still, keep application equipment close to the ground, and use amine salt formulations when they are available. Many herbicides are formulated as both amine salts and esters. This information can be found on the container label. Ester formulations are more volatile than amine salt products and may readily change from a liquid to a vapor. Vapors can be moved more easily and much further than spray particles or droplets, even in a light breeze. It is your responsibility as the applicator to prevent drift and possible off target damage.

### **REMEMBER**

- Good management is the key to a thick, healthy lawn.
- Use herbicides only when and where needed. Herbicide application should not be a regular maintenance operation.
- Read and follow all herbicide label instructions. Calculate and measure accurately.
- Purchase and mix only what you need. Store all pesticides in a locked and secure area.

*Acknowledgments: We would like to thank Dr. W. Mitchell, Emeritus Professor of Agronomy UAF/AFES, for his contributions to turfgrass research in Alaska and for his editorial assistance on this publication.*

*For more information, contact your local Cooperative Extension Service office or Bob Gorman, Extension Faculty, Natural Resources and Community Development, at 907-747-9413 or [rfgorman@alaska.edu](mailto:rfgorman@alaska.edu). Wayne Vandre, Extension Horticulture Specialist, and Mary J. Comeau, IPM Project Coordinator, wrote this publication in 1998. Revised by Bob Gorman in May 2009.*

**Visit the Cooperative Extension Service website at [www.uaf.edu/ces](http://www.uaf.edu/ces)  
or call 1-877-520-5211**

